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Term: L1 and (event$ or condition$ or criterion$)

Display: 10 **Documents in Display Format:** KWIC **Starting with Number** 1

Generate: ○ **Hit List** ◉ **Hit Count** ○ **Side by Side** ○ **Image**

Search Clear Interrupt

Search History

DATE: Thursday, May 26, 2005 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=ADJ			
L5	L1 and (status$ with (event$ or condition$ or criterion$))	1	L5
L4	L1 and (transmit$ with (event$ or condition$ or criterion$))	1	L4
L3	L1 and (event$ or condition$ or criterion$)	1	L3
L2	L1 and (event$ or condition$ or criterion$)	1	L2
L1	5613160.pn.	1	L1

END OF SEARCH HISTORY

Hit List

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Search Results - Record(s) 1 through 1 of 1 returned.

☐ 1. Document ID: US 5613160 A

L3: Entry 1 of 1 File: USPT Mar 18, 1997

DOCUMENT-IDENTIFIER: US 5613160 A
** See image for Certificate of Correction **
TITLE: In an interactive network board, method and apparatus for placing a network peripheral in a default configuration

Detailed Description Text (12):
ALAN member capable of exercising significant control over LAN peripherals is the PC 18 having a PSERVER program embedded therein. PSERVER has the ability to service multiple user-defined print queues, perform dynamic search queue modification, and provide defined notification procedures for exception (failure) conditions and status and control capabilities. PSERVER is provided in several forms. PSERVER.EXE is a program that runs dedicated on a work station and controls both local and remote printers. The local printers can be connected to either serial or parallel ports, and the remote printers are printers running elsewhere in the system. Two other forms of the PSERVER program are the PSERVER.VAP and the PSERVER.NLM. These are PSERVER versions that run on the file server 30 itself. The .VAP version is for NetWare.RTM. 286, and the .NLM version is for NetWare.RTM. 386. While the PSERVER provides much more capability than the RPRINTER and QSERVER, one of its drawbacks is that the .EXE version requires a dedicated personal computer.

Detailed Description Text (17):
The CPCONSOL program (to be discussed in greater detail in section 4i below) provided in the network administrator's PC 14 is capable of interfacing with the NEB 2 (and other network members) to perform such functions as displaying current information for a selected network device (interface information, control information, font information, layout information, quality and common environment information, duplex information, and miscellaneous information). CPCONSOL is also capable of setting or modifying the safe (default) condition of a network device. CPCONSOL may also activate or deactivate applications of the NEB 2 such as CPSERVER or CRPRINTER (to be discussed below, but generally similar to the PSERVER and RPRINTER software packages discussed above). Furthermore, the CPCONSOL enables the PC 14 to display a log file, clear the log file, or write the log file to memory such as a local or a file system disk. CPCONSOL can also display such printer-related information on PC 14 as the number of jobs, the number of pages per job, the number of pages per minute, the time per job, the number of total pages per day, the number of total jobs per day, and the number of days. The CPCONSOL program is also capable of displaying on the PC 14 such network-related information as media related and non-media related information, and of clearing such network statistics.

Detailed Description Text (55):
The software developed for the NEB 2 includes software embedded in the NEB and software loaded into the network administrator's PC 14. The NEB-embedded software

provides both the NetWare.RTM.-compatible node and NetWare.RTM.-compatible print services directly inside the printer 4 without the overhead of a work station PC and its DOS operating system. The NEB-embedded software comprises a plurality of application modules (CPSERVER, CRPRINTER, etc.), real-time service modules, network protocol stacks, and a MONITOR program which performs application switching, process extension, device semaphores, and shares buffer-pool management. The functionality of the NEB is determined by the types of application modules and the number of protocol stacks of network layered communication software that are configured into the NEB 2. Interaction between the printer 4 and the network is coordinated by the MONITOR program which responds to real-time events while allocating NEB processing time to each application module on a multi-tasking basis.

Detailed Description Text (57):
The soft-time layer is arbited and controlled by the MONITOR program (to be discussed in section 41 below) which gets control of the NEB microprocessor 216 after all real-time events have been serviced. A non-preemptive (cooperative multi-tasking) approach is used to divide the processor between the various application modules that are loaded such that no one application module can pre-empt other modules by capturing the microprocessor.

Detailed Description Text (66):
Furthermore, configuration data for the printer accessible to the network through the use of CPCONSOL includes: (A) network group information such as protocol type, the node name, the file server name, routing, POST error code, NEB firmware level, MAC address, server mode; and (B) printer group information such as safe (default) environment, font, disk present, disk size, initial environment, logging on/off, log file size, configured/nonconfigured, and net name. Additionally, logs can be kept of print job flow, print engine usage, and network behavior. Examples of such usage and statistical log entries include: (A) network group information such as receive statistics, transmit statistics, and non-media related information; (B) job entry information such as date/time/time zone, log-in (user's name), job name, pages, copy count, and print status; (C) initialization entry information; (D) error condition entry information; (E) clear log entry information; and (F) printer group information such as the number of jobs, pages/job, pages/minute, time/job, total pages/day, total jobs/day, number of days and total resets.

Detailed Description Text (67):
CPCONSOL is a menu-driven DOS executable program whose function is to provide extensions to the Novell PCONSOLE printer utility. The CPCONSOL extension enables access to the additional control and monitoring features of the open-architecture printer 4. These features will enhance print service management across the network by allowing the network administrator's PC 14 to control and maintain the printer from a remote location. In summary, CPCONSOL is the utility that exports printer control features to the network administrator, allows reconfiguration of the safe (default) environment, and allows the network administrator to view network and printer status, job statistics, and a log of the previously-processed jobs and error conditions. CPCONSOL gathers the requested information by communicating with the NEB-embedded software program module CPSOCKET.

Detailed Description Text (76):
FIGS. 5A, 5B, and 5C comprise a top-level flowchart depicting a notional sequence of events which may occur when the NEB and its associated software is installed in a printer coupled to a local area network. Overall, the printer renders print information and is coupled to the NEB through a bi-directional SCSI interface. The printer may also have a parallel port and/or a serial port for receiving print information from other sources. The NEB is connected to the printer via the bi-directional SCSI interface, the board receiving printer information from the local area network. The board sends print jobs and printer status inquiries to the printer over the SCSI interface, receives printer status from the printer over the

SCSI interface, and reports printer status over the network.

Detailed Description Text (78):
Illustrating a sequence of events which may occur when the NEB is installed in a printer, FIG. 5A begins when power is applied to the NEB at Step S1. At Step S2, the NEB executes a power-on-self-test ("POST") from EPROM 220. At Step S3, if the POST is successfully completed, the process moves to Step S5 where the NEB EPROM 222 operational code reads the network and printer configuration code from NVRAM 228. If the POST is not successfully accomplished at Step S3, a failure indication is logged at Step S4 and this information may be transmitted to the network over the LAN interface. An LED failure/diagnostics light on the NEB or printer may also be activated.

Detailed Description Text (83):
Summarizing Steps S9 through S12, a method for logging system statistics of a printer connected via a hi-directional interface to an interactive network board for LAN communication includes the steps of counting in the printer the number of pages printed, and counting on the board the number of jobs printed. The printer is interrogated daily over the bi-directional interface for the number of pages printed, and the board then calculates daily statistics using the number of pages, the number of jobs, and other status information. The daily statistics are then stored and may be accessed and remotely displayed using CPCONSOL from the network administrator's PC 14. An additional feature of the "autologging" function is that different levels of statistics may be logged. For example, at a basic level, only the number of pages for each job may be logged. At more advanced levels, the number of pages per job plus a log of failure conditions may be logged; or the job start and end times may be logged in addition to the failure conditions and the number of pages per job. The logging level is set by CPINIT.

Detailed Description Text (91):
More particularly, MONITOR is a software module downloaded from EPROM 222 to DRAM 220 in Step S6. MONITOR is a non-preemptive multitasking monitor which distributes the processor usage among the several application tasks which are currently active. The non-preemptive nature of the monitor requires that each application task periodically relinquish control so that other tasks gain the opportunity to execute. The relinquish control mechanism is implemented using a software interrupt to pass control to the MONITOR. At an interrupt, MONITOR saves the state of the current task, restores the state of another active task, and resumes (or commences) execution of the new task. The task which originally relinquished control eventually regains control at the interrupt point, i.e. with its context restored to the same condition as when it relinquished control.

Detailed Description Text (108):
Before writing new data into EPROM 222, it is first necessary to unequivocally ensure that a write operation is, in fact, intended. Obviously, any accidental writings into EPROM 222 could render the NEB unusable. Therefore, before information may be "flashed" to EPROM 222, a specified sequence of events will occur in Step S33 in order to access the EPROM (to be discussed in greater detail in section 4p below). In the present embodiment, unless two data bits are changed in two separate I/O locations, the +12 Volts necessary to write to the EPROM will not be provided.

Detailed Description Text (122):
Upon termination of POST, microprocessor 216 puts a checksum code onto serial port 218 and then enters a window of quiescent operation (for example, a one second window) during which microprocessor 216 can receive commands (e.g. for testing--see paragraph 5 below) via serial port 218. The POST checksum code may be obtained by a device coupled to serial port 218 to determine the outcome of POST. For example, a no error condition may be indicated by a POST checksum code of "0000h", while a POST checksum code indicating an error may be indicated by a non-zero hexadecimal

value which indicates the area of failure. In the case of failure, microprocessor 216 may also illuminate LED 240 on NEB 2 to signal to a user that an error has been detected. Preferably, LED 240 is illuminated on power-up and is only turned off if POST is successful.

Detailed Description Text (123):
Following successful completion of POST and in the event that no commands are received via serial port 218 during the one second quiescent window of activity, microprocessor 216 begins to load software modules stored in EPROM 222 into DRAM 220. Microprocessor 216 does not execute those software modules directly from EPROM 222, but rather loads those modules into DRAM 220 for execution from DRAM 220. By virtue of this arrangement, it is possible to select the specific modules that are retrieved from EPROM 222 for execution out of DRAM 220 so as to permit flexible configuration of NEB 2 (see section 4d below). For example, in accordance with a configuration command stored in NVRAM 228, microprocessor 216 may retrieve selective modules from EPROM 222 for loading into DRAM 220 and for execution from the DRAM.

Detailed Description Text (192):
Under logging information, the system administrator specifies one of four different levels of logging: "NONE", in which logging is disabled; "AUTO", in which basic printer usage statistics are logged once per day; "ERROR", in which basic printer usage statistics and error events are logged as they occur; and "JOB", in which basic usage printer statistics, error events and job start/end information are all logged as they occur. After selecting the log preference, the system administrator must also set the maximum log size (except when "NONE" is selected) so as to permit the printer to reserve this amount of space on its disk (or on its NVRAM 111 in the event there is no printer disk or in NVRAM 228 in the NEB) for storing log information.

Detailed Description Text (198):
CPCONSOL is a utility program executed from the system administrator's PC 14 by which the NEB can be used for maximum control and efficiency of the networked printer. Using CPCONSOL, it is possible to remotely track routine and ongoing maintenance parameters. For example, it can be determined if toner is low, if the paper tray is empty, if a page is jammed, or if the printer is not responding at all. CPCONSOL can also keep track of the total number of pages printed to schedule routine and preventative maintenance, as well as plan for eventual printer replacement.

Detailed Description Text (226):
There are 29 possible status conditions, "NORMAL" being the most common, as summarized in Table 8.

Detailed Description Text (244):
As described earlier with respect to FIG. 5A, Steps S9 through S12 comprise an automatic logging function in which peripheral statistics (e.g. number of pages printed per day) and error events are automatically logged (stored) for later retrieval; and wherein the logging level (statistical resolution) may be varied by the network administrator. In general, the network administrator may select a logging level, and then extract printer statistics and error events from the log file at any time. The network administrator's portion of such functions has been described above in paragraph 4i, and reference may be had to the discussion and tables set forth therein, especially Table 7 which indicates the content of the log file depending upon the logging level set by CPINIT.

Detailed Description Text (249):
The ERROR logging level maintains the daily statistics discussed above, and also error conditions in the printer and also errors that occur in an application (i.e. CPSERVER). The NEB queries the printer every minute for such error conditions. Such

printer error conditions may include: off-line; out-of-paper; printer-is-open; paper-jam; no-toner-cartridge; toner-is-low; printer feed and load errors; tray-is-full; line errors; print-job-rejected; font-is-full; service call; etc. Application errors may include: fileserver down; primary fileserver unavailable; CPSERVER running elsewhere; IPX not installed; etc.

Detailed Description Text (250):
The JOB logging level maintains the daily statistics and error conditions noted above and also maintains job start and job end information, which are determined by the NEB. Of course, the number and types of logging levels, and the data retained in each logging level may be varied according to the particular peripheral and the particular LAN in which the NEB is installed.

Detailed Description Text (252):
If the NONE logging level has not been chosen in Step S1701, Step S1702 determines whether the AUTO logging level has been selected. If the AUTO logging level has been selected, the process proceeds to Step S9 where midnight is awaited. However, if the AUTO logging level has not been selected, Step S1703 determines whether the ERROR logging level has been selected. Where the ERROR logging level has been selected, the process skips to Step S1706 where a one minute timeout is awaited. However, if the ERROR logging level has not been selected, it is determined in Step S1704 that the JOB logging level has been selected. In this case, Step S1705 stores the job start and job end times to the log file. At Step S1706, a one minute timeout is awaited whereafter Step S1707 queries the printer for error events and saves such events to the log file. Thus, when either the ERROR or JOB logging levels have been selected, the board queries the printer every minute for error events and stores such error events in the log file.

Detailed Description Text (254):
In Step S11, the daily printer statistics are calculated utilizing the printer statistics received in Step S10. Thereafter, in Step S12, the daily statistics and the error events are stored in the printer hard disk 114 and/or the printer NVRAM 111, and/or the NEB NVRAM 228. Note here that the network administrator may select to store logging statistics and error events in any combination of memories, providing further flexibility to the LAN.

Detailed Description Text (257):
As briefly described earlier with respect to Step S20 of FIG. 5B, the NEB EPROM 222 stores a MONITOR program which is a mechanism which supports multi-tasking in the run-time environment while permitting synchronous operation in a de-bug environment. MONITOR permits currently-called tasks to be performed on a non-preemptive basis while the NEB awaits real-time interrupts from either the LAN (for CPSERVER or CPSOCKET) or through the SCSI interface (e.g., when status information is being provided from the printer to the NEB in response to a previously-received status request from the LAN). Thus, MONITOR permits all currently-executing tasks to be performed simultaneously by sharing use of the microprocessor 216. Of course, all soft-time applications, including MONITOR itself, are interruptable by real-time events.

Detailed Description Text (258):
FIG. 18 is a notional flowchart of a sequence of events which may occur in order to illustrate the multi-tasking operation within the NEB. At Step S1, power is applied to the NEB, and the MONITOR program is downloaded from EPROM 222 to DRAM 220 in Step S1801. For example, the following modules are downloaded together with MONITOR: SCSI Driver; Link Support Layer; Network Driver; Prescan; IPX/SPX; Customized NETX; SAPSERVER; CPSOCKET; and Print Applications (see FIG. 6).

Detailed Description Text (273):
Thus, a robust and efficient hardware and software solution has been found for ensuring that the printer itself stores a default configuration and is responsible

for placing itself in a default condition at the end of every print job.

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Term: L1 and (event$ or condition$ or criterion$)

Display: 10 **Documents in Display Format:** KWIC **Starting with Number** 1

Generate: ○ **Hit List** ◉ **Hit Count** ○ **Side by Side** ○ **Image**

Search Clear Interrupt

Search History

DATE: Thursday, May 26, 2005 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=ADJ			
L5	L1 and (status$ with (event$ or condition$ or criterion$))	1	L5
L4	L1 and (transmit$ with (event$ or condition$ or criterion$))	1	L4
L3	L1 and (event$ or condition$ or criterion$)	1	L3
L2	L1 and (event$ or condition$ or criterion$)	1	L2
L1	5613160.pn.	1	L1

END OF SEARCH HISTORY

Def Stats

Hit List

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Search Results - Record(s) 1 through 1 of 1 returned.

☐ 1. Document ID: US 5613160 A

L5: Entry 1 of 1 File: USPT Mar 18, 1997

DOCUMENT-IDENTIFIER: US 5613160 A
**** See image for Certificate of Correction ****
TITLE: In an interactive network board, method and apparatus for placing a network peripheral in a default configuration

Detailed Description Text (12):
ALAN member capable of exercising significant control over LAN peripherals is the PC 18 having a PSERVER program embedded therein. PSERVER has the ability to service multiple user-defined print queues, perform dynamic search queue modification, and provide defined notification procedures for exception (failure) conditions and status and control capabilities. PSERVER is provided in several forms. PSERVER.EXE is a program that runs dedicated on a work station and controls both local and remote printers. The local printers can be connected to either serial or parallel ports, and the remote printers are printers running elsewhere in the system. Two other forms of the PSERVER program are the PSERVER.VAP and the PSERVER.NLM. These are PSERVER versions that run on the file server 30 itself. The .VAP version is for NetWare.RTM. 286, and the .NLM version is for NetWare.RTM. 386. While the PSERVER provides much more capability than the RPRINTER and QSERVER, one of its drawbacks is that the .EXE version requires a dedicated personal computer.

Detailed Description Text (66):
Furthermore, configuration data for the printer accessible to the network through the use of CPCONSOL includes: (A) network group information such as protocol type, the node name, the file server name, routing, POST error code, NEB firmware level, MAC address, server mode; and (B) printer group information such as safe (default) environment, font, disk present, disk size, initial environment, logging on/off, log file size, configured/nonconfigured, and net name. Additionally, logs can be kept of print job flow, print engine usage, and network behavior. Examples of such usage and statistical log entries include: (A) network group information such as receive statistics, transmit statistics, and non-media related information; (B) job entry information such as date/time/time zone, log-in (user's name), job name, pages, copy count, and print status; (C) initialization entry information; (D) error condition entry information; (E) clear log entry information; and (F) printer group information such as the number of jobs, pages/job, pages/minute, time/job, total pages/day, total jobs/day, number of days and total resets.

Detailed Description Text (67):
CPCONSOL is a menu-driven DOS executable program whose function is to provide extensions to the Novell PCONSOLE printer utility. The CPCONSOL extension enables access to the additional control and monitoring features of the open-architecture printer 4. These features will enhance print service management across the network by allowing the network administrator's PC 14 to control and maintain the printer from a remote location. In summary, CPCONSOL is the utility that exports printer

control features to the network administrator, allows reconfiguration of the safe (default) environment, and allows the network administrator to view network and printer status, job statistics, and a log of the previously-processed jobs and error conditions. CPCONSOL gathers the requested information by communicating with the NEB-embedded software program module CPSOCKET.

Detailed Description Text (226):
There are 29 possible status conditions, "NORMAL" being the most common, as summarized in Table 8.

Term	Documents
STATUS$	0
STATUS	167172
STATUSA	1
STATUSABLE	1
"STATUSACCOUNTMGR.JAVA"	1
"STATUSACCOUNTPACKET.JAVA"	1
"STATUSACCOUNT.PROPERTIES"	1
STATUSALL	1
"STATUSANALOG.DISCHTEMP"	1
"STATUSANALOG.ODTEMP"	1
"STATUSANALOG.REMOTESTPTOFFSET"	1
(L1 AND (STATUS$ WITH (EVENT$ OR CONDITION$ OR CRITERION$))).USPT.	1

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